Release notes for ENDF/B Development p-001_H_003 evaluation

December 2, 2016

- **checkr** Warnings:

  1. A previous error halted parsing of the current section
     MAT= 131, MF= 1, MT=451 (1): Parsing stopped

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 1, MT=451
         SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER     40 TO      47
     ```

- **checkr** Errors:

  1. A variable is outside the allowed ENDF range
     MAT= 131, MF= 1, MT=451 (0): Variable range

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 1, MT=451
         MOD =    2 OUT OF RANGE    0 -    0          RECORD NUMBER      40
     ```

  2. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 3, MT= 2 (0): Directory (b)

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 3, MT=  2
         SECTION  3/  2 NOT IN DIRECTORY              RECORD NUMBER      49
     ```

  3. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 3, MT= 50 (0): Directory (b)

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 3, MT= 50
         SECTION  3/ 50 NOT IN DIRECTORY              RECORD NUMBER      54
     ```

  4. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 3, MT=650 (0): Directory (b)

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 3, MT=650
         SECTION  3/650 NOT IN DIRECTORY              RECORD NUMBER      83
     ```

  5. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 6, MT= 2 (0): Directory (b)

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 6, MT=  2
         SECTION  6/  2 NOT IN DIRECTORY              RECORD NUMBER      96
     ```

  6. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 6, MT= 50 (0): Directory (b)

     ```
     ERROR(S) FOUND IN MAT= 131, MF= 6, MT= 50
         SECTION  6/ 50 NOT IN DIRECTORY              RECORD NUMBER     314
     ```

  7. Missing a section in directory so your directory is messed up. This error will break everything else
     MAT= 131, MF= 6, MT=650 (0): Directory (b)

```
        ERROR(S) FOUND IN MAT= 131, MF= 6, MT=650
           SECTION  6/650 NOT IN DIRECTORY                    RECORD NUMBER     458
```

- `fizcon` Errors:

  1. The cross section and an outgoing distribution don't span the same energy region.
     MAT= 131, MF= 3, MT= 2 (1): Diff limits (b)

     ```
        ERROR(S) FOUND IN MAT= 131, MF= 3, MT=  2
           THE MAXIMUM INCIDENT ENERGY OF  1.20000E+07 (EV)
              SHOULD BE GREATER THAN OR EQUAL TO  2.00000E+07
     ```

  2. The cross section and an outgoing distribution don't span the same energy region.
     MAT= 131, MF= 3, MT=650 (1): Diff limits (b)

     ```
        ERROR(S) FOUND IN MAT= 131, MF= 3, MT=650
           THE MAXIMUM INCIDENT ENERGY OF  1.20000E+07 (EV)
              SHOULD BE GREATER THAN OR EQUAL TO  2.00000E+07
     ```

  3. The cross section and an outgoing distribution don't span the same energy region.
     MAT= 131, MF= 6, MT= 50 (1): Diff limits (a)

     ```
        ERROR(S) FOUND IN MAT= 131, MF= 6, MT= 50
           SECTION DOES NOT SPAN THE SAME ENERGY RANGE AS FILE   3, MT=  50
     ```

- `fudge-4.0` Errors:

  1. There is a gap in the cross section
     reaction label 0: H1 + H3 / Cross section: (Error # 0): Gap in xsect.

     ```
        WARNING: Gap in cross section data from 1.2e7 eV to 20. MeV
     ```

  2. Tabulated threshold below calculated threshold!
     reaction label 1: n + He3 / Cross section: (Error # 0): Coulomb_threshold_mismatch

     ```
        WARNING: Tabulated threshold 1.0191e6 eV below calculated threshold 1019165.454977745 eV!
     ```

  3. Calculated and tabulated Q values disagree.
     reaction label 1: n + He3 (Error # 1): Q mismatch

     ```
        WARNING: Calculated and tabulated Q-values disagree: -1243803.409596443 eV vs -763870. eV!
     ```

  4. Energy range of data set does not match cross section range
     *reaction label 1: n + He3 / Product: n / Distribution: / angularTwoBody - XYs2d:
     (Error # 0): Domain mismatch (a)*

     ```
        WARNING: Domain doesn't match the cross section domain: (1019100.0 -> 12000000.0) vs (1019100.0 -> 20000000.0)
     ```

  5. There is a gap in the cross section
     reaction label 2: H2 + H2 / Cross section: (Error # 0): Gap in xsect.

     ```
        WARNING: Gap in cross section data from 1.2e7 eV to 20. MeV
     ```

  6. Calculated and tabulated Q values disagree.
     reaction label 2: H2 + H2 (Error # 1): Q mismatch

     ```
        WARNING: Calculated and tabulated Q-values disagree: -4626281.411868572 eV vs -4.0329e6 eV!
     ```

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